

BIMM 120- Microbiology Course Syllabus

Fall 2018 – Lectures, Tuesdays & Thursdays, 8:00AM-9:20 AM in Tata Auditorium

Food or drinks are not allowed in Tata Auditorium

Instructor: Giorgia Pirino, Ph.D.

Email: gpirino@ucsd.edu

Please include BIMM120, your full name, ID, and IA name in all emails to Dr. Pirino

Office: H&SS 1145F

In- person Office Hours: Tuesdays, 10:00-11:00AM. Location: Pacific Hall 3501. You are encouraged to take advantage of office hours. Please present your questions about course material in person during office hours, NOT by email.

I cannot guarantee an answer to your email, unless it is an urgent issue.

Office hours function as a relaxed forum to ask questions and discuss course content. Regular in-person *Office Hours will start in week 1 (Tuesday, October 2nd)*.

Virtual Office Hours: Every Monday Dr. Pirino will hold 1 hour of virtual office hours through Google Hangout (from 8 to 9PM; more information will be provided).

Instructional Assistants:

Robert Mills- rhmill@ucsd.edu

Andrew Quach- a6quach@ucsd.edu

Alexander Scavo- ascavo@ucsd.edu

Christopher Ivanoff- civanoff@ucsd.edu

Discussion Sections- Time, Location & IA

Discussion A01: Monday, 10:00 AM-10:50 AM in HHS 2150 - Christopher Ivanoff

Discussion A02: Mondays, 11:00 AM-11:50 AM in HHS 2150 - Alexander Scavo

Discussion A03: Monday, 12:00 PM-12:50 PM in HHS 2150 - Alexander Scavo

Discussion A04: Wednesdays, 8:00 AM-8:50 AM in APM 2301 - Andrew Quach

Discussion A05: Wednesdays, 9:00 AM-9:50 AM in APM 2301 -Andrew Quach

Discussion A06: Wednesdays, 6:00 PM-6:50 PM in CENTR 207 - Robert Mills

Discussion A07: Wednesdays, 7:00 PM-7:50 PM in CENTR 207 - Robert Mills

Discussion Sections will start in week 1.

Office hours- Time, Location & IA

Christopher Ivanoff - Mondays, 11AM-12PM outside of Pines Dining Hall

Alexander Scavo - Thursdays & Fridays, 10-11AM at Perk's Coffee Shop (UCSD Bookstore)

Andrew Quach - Mondays, 12:00 - 1:00PM in BRF 2 (Biomedical Research Facilities), 1st floor

Robert Mills - Thursdays, 9:30AM- 11:30AM in the Biomedical Research Facility 2 (BRF2) lobby.

COURSE DESCRIPTION: This is an introductory course in general microbiology designed for Biology majors. The overall themes of this course are: 1) microbial biology, biochemistry and genetics 2) microbial evolution and diversity, 3) interactions of microorganisms with humans and their environment. **Prerequisites:** BLD1 and BIBC 100 or BIBC 102 (the last two may be taken concurrently). This course will be available through podcast at podcast.ucsd.edu.

Learning goals: At the end of the course students will be able to appreciate microbial diversity, understand microbial genetics, microbial metabolism, microbial evolution, how microbes regulate their genes, and how microbes interact with the environment.

Preparation and expectations: To do well in BIMM 120, students should have a strong background in general biology and organic chemistry. It is assumed that students know basic biochemistry (the major types of molecules found in cells, cell metabolism), as well as basic (introductory) cell biology, molecular biology, genetics, and the importance of scientific method. Although this is not a lab course, and no lab skills are required, it is expected that students know how a general biology research lab functions and how the scientific method is applied to research, based on information acquired in previous courses and scientific publications. Students should review this material before the start of the quarter or during the first week. We will not specifically cover these principles in class because students should already know this material from their prerequisites. Students are responsible for any remedial learning required to understand the material presented in this course.

Discussion Sections: Students may attend other discussion sections/IA office hours if space is available. You are encouraged to take advantage of discussion sections. Although they are *optional*, they represent a great opportunity to ask for clarification and discuss course content. IAs will review class material, answer questions, and review for exams. Students should normally attend the section they are registered for, but may attend other discussion sections/IA office hours, if space is available. However, since students will not be able to keep their midterm exams after they have been graded, students should come during the discussion section they are enrolled into to see their midterm exams. IAs will *only* bring exams of the students enrolled in that specific discussion. Otherwise, students may make an appointment with their IA to see the midterm exams.

Textbook: “Microbiology, an evolving science, 4th edition” Foster & Slonczewski. If you have the 3rd edition, it is **ok**. Just make sure that the readings correspond, since I will refer to the 4th edition during lectures. If you are using a different textbook, make sure that the course topics are covered. Scientific articles to complement the textbook readings will be provided before the lectures.

You may choose one of the following options:

- Purchase the textbook from the campus bookstore
- Purchase access to the eBook for \$75 at <http://books.wwnorton.com/books/webad-detail-editions.aspx?id=4294992872>
- Purchase/rent the textbook via Amazon or other websites/bookstores.

A few copies of the textbook will be available on reserve at the Geisel Library as soon as the library locates them.

Final grade: Your final grade will be determined by the following assignments:

- Participation: 10 % of final grade (20 points) divided as followed:
 - Class participation/iClickers 5% (10 points; 1 point per week).
 - Discussion via Piazza 5% (10 points; 1 point per week).
- Homework: 10% of final grade (20 points)
- Exams: 80 % of final grade (160 points):
 - Midterm Exam: the best of the two midterm exams' scores (70 points) will count toward the final grade
 - Final Exam: 90 points

Total points available: 200 points (100%)

Extra credit: Concept videos (see page 6)

Grading scale: Please assume this class is NOT curved and use the raw score (rounded up to nearest 0.01%) that you receive to calculate your grades.

For example, <60/100 is a F; <70/100 is a D; 70/100 is a 70 or C-; 73/100 is a 73 or C; 78.5/100 is a 78.5 or a C+; 80/100 is an 80 or B-; 83/100 is an 83 or a B; 88.5/100 is an 88.5 or B+; 90/100 is a 90 or A-; 93/100 is a 93 or A.

Examinations: We will have 2 midterm exams and 1 final exam: 1) Midterm Exam 1 – October 18, 2018 (lecturers 2-6, including readings); 2) Midterm Exam 2 - November 8, 2018 (Lectures 7-11, including readings; concept videos 1); 3) Final Exam - December 11, 2018 (lectures 12-17 including readings; ; concept videos 2 & 3); Midterm Exams will be held during class time. The final Exam will be held in a TBA location. Exams are **not** cumulative.

Review Section for Final Exam: Thursday, December 6, from 8AM to 9:20AM in the regular lecture hall.

Make-up Exams: *There are no make-up exams. No exceptions! However, considering that unforeseen circumstances may cause a student to miss an exam or not to perform well in one exam, the lowest score received in one of the 2 midterm exams will be dropped. Only one of the two midterm exams (the one with the higher score) and the final exam will count toward the final grade. The final exam cannot be rescheduled or its grade substituted with a midterm score for any reason. In case of a dare emergency, please contact the instructor within 24 hours. After review by the instructor, the student may take a different exam as a substitution; most likely it will consist in an oral exam. If you have a job/graduate school/medical school interview, schedule it on a non exam day; interviews are not considered dare emergencies. Personal commitments/conflicts are also not considered dare emergencies.*

Exams: Exams will consist in short answer, true/false, fill in the blank, and multiple choice questions. Regrade policy for the exams are discussed under the folder “Regrade Policy” on TritonEd. Please read the entire regrade policy before submitting a regrade request.

You must bring your **student ID** and a **pen (no pencil, if you like to have a regrade)**. Only exams written in nonerasable pen will be considered for regrades, and white-out may not be present on such exams (see regrade policy). **No** calculators, phones, smart watches, or other electronic devices are required or allowed. ALL personal items must be **CLOSED** and placed in front of the classroom. Make sure your phone is turned **OFF** and put away. Students may not use the restroom during exams.

During the exam: If you are sure that a question is written ambiguously, raise your hand and ask for clarification. Most ambiguities and problem questions should be identified this way, so that clarifications can be announced to the entire class and so that the grading key can be modified before the exams are graded. Exams will use scientific language, make sure that you are familiar with scientific terms. IAs cannot define scientific words, help you understand a question, or confirm that you have chosen the correct answer.

Class Participation in an Inclusive Learning Environment: Participation in class is very important. The classroom should be active all week, not just during class hours. Student class participation should incorporate responses to their peers, their opinions, pertinent information regarding subjects covered in class, from things that students have read, and examples from their experience. The distinguishing feature of a well done class discussion might include an objective and critical analysis of lecture notes, reading assignments and what you have experienced. In the spirit of scholarly discussion, the instructor expects responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help students test their ideas, reinforce what they have learned, and share resources with others in the class. We will discuss several topics during lectures and students will have time to discuss them with their classmates first and then with the rest of the class. During our time together I will provide the structure for an inclusive learning environment by implementing best practices from social, cognitive and learning research. It is important that you contribute to this by participating in group work, helping your peers and being respectful of other students and all faculty members. Try working with others you don't know. Don't dominate conversations or questions and answer time. Give your peers time to think before just providing them with your answer!

Occasionally I will call students during class to share their groups' discussions with the class on a specific topic. *Students should seat next to the same classmates during lecture to facilitate discussion.* Class participation points will be assigned via 3 ways: iClickers, class discussion, and Piazza (see below).

To receive points for class participation, students should answer iClickers questions, share their opinions within the group and occasionally within the class, and participate in the class' Piazza group.

iClickers/Class Discussion: To facilitate class discussion, we will use iClickers during lecture. Students will receive points for clicking, NOT for giving a correct answer.

We will start recording iClickers participation in week 1 (second meeting of the course). However, we will practice with iClickers during the first lecture (Thursday, September 27th). iClickers are available for purchase at the UCSD bookstore. Once you have purchased your Clicker, you can register it on TritonEd – go to the tools section and look for the iClicker registration link. I strongly recommend the i>Clicker 2 as it is very convenient. Older versions of i>Clicker are acceptable if you already have one, but you may need to reset your clicker every time it goes into sleep mode. **Do NOT count on sharing a clicker with another student in the same quarter as the software only records scores for one student, even if both of you are in**

different classes. After registration, your iClicker is linked to your name on the class roster. Therefore, sharing iClickers is illegal.

Participation will also be evaluating via class discussion. Students will receive points for discussing topics with other classmates, using the think-pair-share method. In the spirit of scholarly discussion, the instructor expects responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help students test their ideas, reinforce what they have learned, and share resources with others in the class. Students who participate in class discussion together with iClickers (points for clicking, not for correct answers) and are present for 85% of the lectures will receive full credit. *During class, some questions may be asked through iClickers and, most of the times, will expand through a group discussion.*

Piazza page: Our Piazza page should work as a message board: students may post/answer questions on that page. Students who have a specific question about the course/course material are encourage to post it on the Piazza page. Other students may wonder the same and the answers will provide an instant clarification to the entire class without misunderstandings. Students who participate **actively** to the class' discussion page receive points that will count toward the final grade. Active participation includes, but is not limited to, posting comments, answering questions posted by other classmates, posting scientific articles, etc. during the entire course. Just liking a post or agreeing with someone else's post does not qualify for participation points. Students receive points at the end of each week (starting week 1; max 1 point per week (from Sunday to Saturday of the same week, total of 10 points) and will be added at the end to generate the final grade for Piazza participation. To sign up:

piazza.com/ucsd/fall2018/bimm120

I suggest you to download the Piazza app so you can be more engaged and receive participation points easily.

Virtual Office Hours: Every Monday Dr. Pirino will hold 1 hour of virtual office hours through Google Hangouts (from 8 to 9PM). Instructions will be posted on TritonEd.

Homework/survey: Students enrolled in BIMM120 will complete 3 homework/surveys assigned in advance by the instructor. Homework will be completed via the course website on TritonEd (more information will be provided later). Students are required to bring the answers to their homework to the following class period or when instructed. The answers will be used for class discussion.

Extra Credit: Students enrolled in BIMM120 may make 3 videos on specific topics (the same for all groups) assigned by the instructor one week in advance (see tentative schedule on page 10). After the deadline, the entire class will have few days to watch the videos, and related questions will be asked during exams. Students who make both videos will receive extra credit points (4 points; extra 2% of final grade). To receive 4 points students must make **ALL** 3 videos as a group. No extra credit will be given to students who do not make concept videos (no points for watching only) or make only 1 OR 2 video/S or make a video/s by him/herself. **If interested on the video preparation, please sign up by adding your name to one of the concept videos groups on TritonED by Friday of week 2 at 11:59 PM. No further requests will be accepted after the deadline. Sign up sheet will open at 2PM of September 27th. *Think twice before enrolling in this extra credit activity. Students who signed up and then decide not to do the videos will receive -1 point, since their negligence will jeopardize other students' performance.***

Instructions to sign up:

- 1) Go to “Tools” from the left of your TritonEd page.
- 2) Go to “Groups” from the right of your TritonEd page.
- 3) Open one of the groups (students already enrolled are shown as well as space available in each group)
- 4) Sign up by adding your name to one of the groups, following the instructions.

Students who like to be in the same group should sign up to the same group on TritonEd. Groups can have up to 4 members. If at the end a group has 3 members, it is OK. If a group has only 1 or 2 members, groups will be combined. Instructions on how to upload videos will be provided later in the course. Videos must be uploaded by the deadlines specified in the course schedule (see last page of this document).

Regrade Requests: All regrade requests should be submitted in writing (either by email or giving them to Dr. Pirino or IAs) *within 5 days* of receiving the graded material (aka, the day that graded exams are brought to discussion sections). Please check the regrade policy on TritonEd for more information.

Scientific articles: We will read several articles throughout the course and they are fair game for the exams, unless otherwise instructed. As you read the scientific papers, focus on the big picture and look for the following points:

1. What were the main goals this paper? What was/were the hypothesis/es?
2. What experiments were performed to test the hypothesis/es?

3. Did the results confirm or refute the hypothesis/es?

4. What were the main conclusions of the paper?

If there is something that you do not understand, skip it temporarily, you can return to it later.

Statement on Office for Students with Disabilities (OSD): To receive accommodation, students must present or email their “Authorization for Accommodation” (AFA) form provided by the Office for Students with Disabilities (OSD) to the instructor. Extended exam times will overlap with the regular exams and usually start at the same time as the regular exams. If OSD exam times for this course conflict with another class, then this course should not be taken. It is the student’s responsibility to make sure class and exam schedules for all of their classes do not have any conflicts.

Statement on Academic Integrity: Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. The consequences of being caught cheating can be severe. Information can be found here: <http://www.ucsd.edu/current-students/academics/academic-integrity/index.html>

Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship: <http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>

Academic misconduct will NOT be tolerated. Any student who engages in suspicious conduct will be confronted and subjected to the disciplinary process. Cheaters will receive a failing grade on the exam or assignment, and/or in the course. They may also be suspended from UCSD pursuant to University guidelines. All class material, such as syllabus, readings, homework, scientific articles, lecture slides, etc. are copyrighted and cannot be posted to websites and/or distributed without instructor’s approval for any reason.

Academic misconduct includes but is not limited to:

1. **Cheating**, such as using “crib notes”, copying answers from another student during the exam, or forge assignments.
2. **Plagiarism**, such as using the writings or ideas of another person, either in whole or in part, without proper attribution to the author or the source. Copying anything from any source is plagiarism if the source is not clearly cited. Plagiarism is stealing someone else's ideas and presenting them as your own.

3. **Collusion**, such as engaging in unauthorized collaboration on exams or assignments, completing for another student any part or the whole of an exam or assignment, or procuring, providing or accepting materials that contain questions or answers to an exam or assignment to be given at a subsequent time.

Electronic Devices: Textbooks, notes, cell phones, pagers, laptop computers, smartwatches, and all other electronic devices must be off and stored out of sight during exams. The use of these devices during an exam is considered an act of academic dishonesty and will be dealt with accordingly. Also, during class students cannot surf the web, use their cell phones, or do anything not related to the class.

Tentative Schedule *

* Changes to the course syllabus will be announced in class

CLASS/ LECTU RES	DATE	Lecture Topic	Homework**	Concept Videos
1	Thursday 09/27/2018	Introduction to the course		
2	Tuesday 10/02/2018	Microbial Evolution		
3	Thursday 10/04/2018	Microbial Evolution		
4	Tuesday 10/09/2018	Microbial Evolution & Phylogeny		
5	Thursday 10/11/2018	History of Microbiology & Microbial Cell Structures & Functions		
6	Tuesday 10/16/2018	Microbial Cell Structures & Functions		Concept Video 1 announced
	Thursday 10/18/2018	Midterm Exam 1		
7	Tuesday 10/23/2018	Microbial Genetics & Biotechnology	Homework 1 due by Tuesday, Oct 23rd, at 8AM	
8	Thursday 10/25/2018	Microbial Genetics & Biotechnology		Concept Video 1 due at 11:59PM
9	Tuesday 10/30/2018	Microbial gene regulation		
10	Thursday 11/01/2018	Microbial gene regulation	Homework 2 due by Thursday, Nov 1st, at 8AM	
11	Tuesday 11/06/2018	Microbial gene regulation & Biofilms		Concept Video 2 announced
	Thursday 11/08/2018	Midterm Exam 2		
12	Tuesday 11/13/2018	Biofilms & Microbial Metabolism		

13	Thursday 11/15/2018	Microbial Metabolism		Concept Video 2 due at 11:59PM
14	Tuesday 11/20/2018	Guest Lecture		Concept Video 3 announced
	11/22/2018	Thanksgiving Holiday		
15	Tuesday 11/27/2018	Human microbiome & antibiotic resistance		
16	Thursday 11/29/2018	Antibiotic resistance & Bacteriophages	Homework 3 due by Thursday, Nov 29th, at 8AM	Concept Video 3 due at 11:59PM
17	Tuesday 12/04/2018	Bacterial arm race & Bacteriophages		
18	Thursday 12/06/2018	In class Review		
Final week	Tuesday 12/11/2017	Final Exam		

* * Homework/survey schedule will be updated throughout the course

See Reading Schedule on TritonEd for specific readings highly recommended for each lecture.